

**Project no.:** REGIONS-CT-2013-320043-CLINES

**Project full title:** Cluster-based Innovation through Embedded Systems technology

**Project Acronym:** CLINES

**Deliverable no.:** D6.1

**Title of the deliverable:** KPI framework (including instructions of application)

<b>Contractual Date of Delivery to the CEC:</b>	<b>M18 (Feb. 2015)</b>
<b>Actual Date of Delivery to the CEC:</b>	<b>M18 (Feb. 2015)</b>
<b>Organisation name of lead contractor for this deliverable:</b>	<b>TUM</b>
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<b>Work package contributing to the deliverable:</b>	<b>WP6, WP4</b>
<b>Nature:</b>	<b>R</b>
<b>Version:</b>	<b>1.0</b>
<b>Total number of pages:</b>	<b>25</b>
<b>Start date of project:</b>	<b>01.09.2013</b>
<b>Duration:</b>	<b>36 months</b>

**Abstract:**

Instrumental for any cluster's and any cluster network's success is a way to measure how well it is doing in reaching its goals. The Key Performance Indicator (KPI) framework presented gives a consistent way of measuring success, by prescribing measurements tied to specific goals. The very structured KPI description includes instructions of application for the measurements. Also described are the theoretical basis for KPIs, and the process used to obtain them for the clusters' common goals in CLINES.

**Keyword list:** KPI, key performance indicators, cluster, cluster network, performance measurement, goals, logical model

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## Introduction

Instrumental for any cluster's and cluster network's success is a way to measure how well it is doing in reaching its goals – and if its current actions are indeed helpful. A Key Performance Indicator (KPI) framework represents a consistent way of measuring success, by prescribing (numeric) measurements tied to specific goals.

This document first describes the properties of good KPIs, and gives an insight into the process used by the CLINES partners to come up with relevant KPIs (Chapter 1).

Then, the CLINES KPIs themselves are presented in a very structured form (Chapter 2), with the "Baseline/Target" section giving specific instructions for the application of the measurements.

The final chapter deals with ideas to measure the success of entire clusters and cluster networks – which is not instrumental to the action plan devised by the CLINES partners, but key to the future success of the cluster partners (Chapter 3).

# 1 Key Performance Indicators - KPIs

For your daily decisions, and to track the success in reaching strategic goals, performance measurement is needed. One method to do this is to employ Key Performance Indicators (KPIs). In the CLINES case, KPIs are based on (numeric) measurements, and are associated with specific goals.

To be effective, KPIs and KPI systems for cluster networks need to have the following properties ([Nachhaltigkeitsnetzwerke2006], p. 145f):

- Goal oriented: relating to the goals of the cluster network
- Complete: concerning the goals, and the availability of data
- Balanced: not giving undue weight to some domains
- Timely: reflecting the current situation, so that one can act upon current developments
- Tangible: understood easily by both internal and external actors
- Consistent: if combined into a KPI system, this system needs to be inherently logic and without contradictions

A mix of absolute and relative measurements is recommended.

As for the evaluation, it is important to quote ([MonitoringRegionalDevelopmentFund2014], p. 6):

“Change in result indicator = contribution of intervention + contribution of other factors”

That means that while an improvement in the KPI might be detected, the claim for this improvement can not without looking closer be attributed solely to the CLINES actions.

Key performance indicators can give numbers, but don't explain the success of a specific cluster network. For a collection of success stories, with insight into the most important success factors for each case, turn to [Kompetenznetzwerke2010].

## The CLINES KPI elicitation process

For the creation of the Joint Action Plan, the CLINES consortium used a process based on the logic model<sup>1</sup> [LogicModel2008].

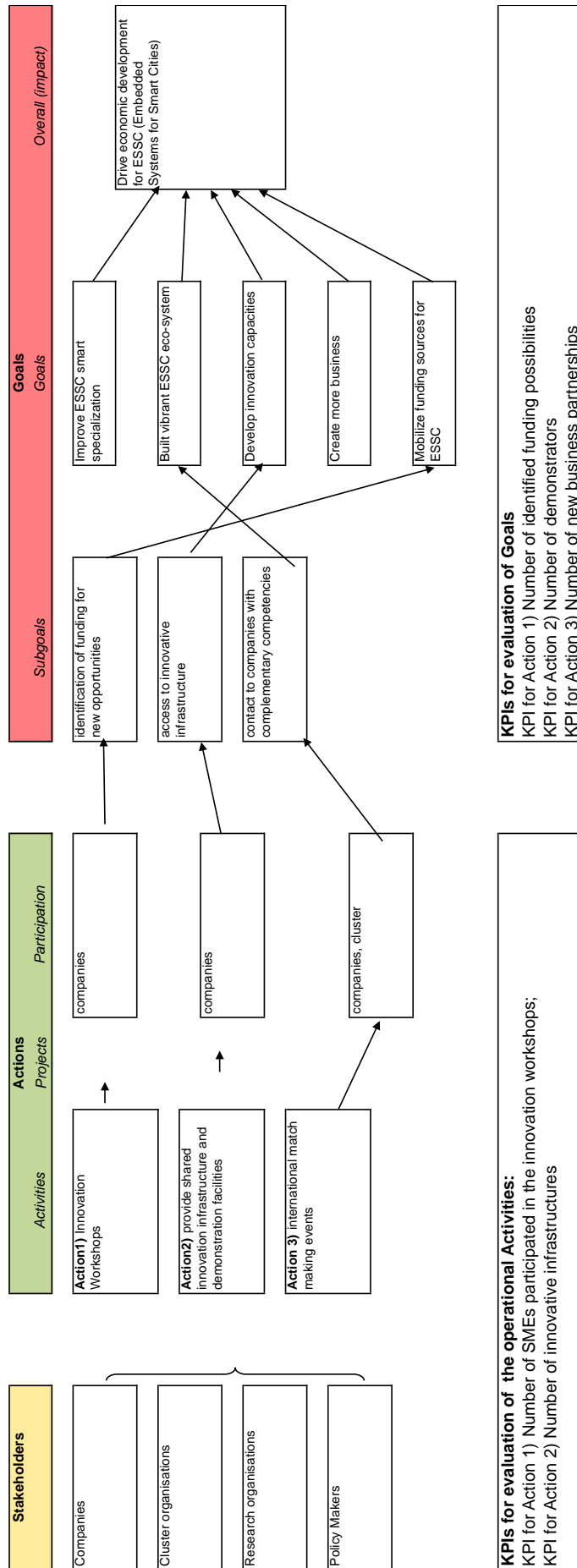
Looking at the figure, the process used to obtain the KPIs becomes clear: Starting from the overall expected impact, five goals were identified, and based on them, 20 subgoals (right side, in red). As resources and parties involved, the stakeholders are listed (left side, in yellow). Now, any action (middle, in green) that the project partners came up with will involve one or more stakeholders, and have impact on one or more (sub)goals.

The KPIs pertain to actions in the model (“number of participants at activity”), or directly to goals (“number of new business partnerships”). In Chapter 2, the KPIs chosen are listed – with each being associated with a subgoal. KPIs based on actions are associated with the subgoal that the action most prominently promotes.

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<sup>1</sup> The „Inputs“ of the logical model correspond to „Stakeholders“ in the CLINES approach, the „Outcomes“ to „Goals“, and the „Outputs“ to „Actions“. This renaming was necessary to be closer to the wording used in cluster networks.

## Logical Model for CLINES Goals and Actions



Relations between Stakeholders, Actions, Goals and KPIs (Example only)

## 2 KPIs for CLINES goals

The CLINES partners have identified 5 goals that they will be pursuing jointly – for a detailed description, see the Joint Action Plan. These CLINES goals were broken down into 20 common subgoals. Different aspects of those subgoals are pursued to different degrees by the partners.

Here, we detail Key Performance Indicators that can track the progress of the CLINES partners on their way to reaching the goals and subgoals. The partners are not required to track the full set of KPIs, but choose a locally employed subset. In fact, each cluster is strongly advised to carefully choose a balanced subset of KPIs so that it closely matches the local stakeholder mix, subgoals and action emphasis. Ideally, each cluster would only need to track one or two of the most generic KPIs for each of the 5 goals. A possible selection of KPIs (each described below) could be: Companies positioned in Smart Specialisation, Creation of project networks, Contact intensity SME - university departments, Offer construction, and Contact with funding organisations.

The KPI description follows the schema: The headline gives the short name, and is followed by a description explaining which aspects of the goal are tracked. One or more metrics provide instructions on how to actually measure the KPI in numbers. At the end, in the baseline/target section, specific instructions for the application of the measurements are given: It is explained on what population the metric is based, and how the measurement results should change over time to indicate a success.

The symbol # used in the metrics is short for “number of”.

### 2.1 Improve ESSC smart specialisation (Goal)

The goal is to sharpen the regional smart specialisation in the area of Embedded Systems for Smart Cities (ESSC).

#### 2.1.1 Understand and leverage regional and joint strengths (Subgoal)

##### 2.1.1.1 Big picture Smart City (KPI)

###### Description

Smart specialisation in CLINES pertains to the idea of smart cities. It requires a catalogue of all (triple helix) players in the area of smart cities, with their respective qualifications and interests.

###### Metric

Existence of a regional Smart City catalogue

###### Baseline/Target

Once the catalogue exists, it is expected to be updated every two years, but this will of course not effect this binary metric.

##### 2.1.1.2 Smart specialisation value chains

###### Description

The smart specialisation areas identified will still be rather broad. To get to concrete actions, a region will need to have a very close look (“drilldown”) at the existing and emerging value chains.



Metric

# Value chains documented

Baseline/Target

The granularity of a value chain is for example “AAL in urban areas for people 55-65 of age”.

The metric is expected to linearly rise over time.

**2.1.2 Create a common regional vision****2.1.2.1 Smart Specialisation services**Description

Small companies especially will be hard-pressed having to deal with smart specialisation. Cluster offices can offer services to ease the adoption of SMEs to the smart specialisation profile.

Metric

# Companies reached with smart specialisation services

Baseline/Target

Services can range from one-on-one tutoring sessions to bigger events, where the ramifications of the smart specialisation strategy are explained to SMEs.

The metric is expected to raise over time.

**2.1.2.2 Companies positioned in Smart Specialisation**Description

A region may have a smart specialisation strategy, but to have an effect, the companies in the area must also think about where to position themselves in this strategy, and sharpen their business around this decision.

Metric

(# Companies that changed their positioning according to the region’s smart specialisation)

/ (# Companies reached about smart specialisation)

Baseline/Target

The denominator refers to all the companies to which the smart specialisation has been directly communicated – be it in targeted dissemination events, or in the process of creating or refining the strategy (for example in the Regional Interest Group).

An increase in the metric is expected in the first year, with a drop afterwards: More companies will still be reached, but those will be the “late adopters” that are not flexible enough to transition to a smart specialisation profile.

**2.1.2.3 Acceptance of the Smart Specialisation Strategy**Description

The smart specialisation strategy must be accepted by key players.

#### Metric

# Key players accepting the smart specialisation strategy

#### Baseline/Target

Acceptance being demonstrated by a clear vote of support, or by being involved in the creation and updating of the agenda. Big players shall mean triple helix players, namely cities, policy makers, and large companies. (SMEs are explicitly excluded, but included in the KPI “Companies positioned in Smart Specialisation”.)

The metric is expected to rise and plateau, the goal is to reach 50% of key players.

## **2.1.3 Focus research efforts**

### **2.1.3.1 Research institutions positioned in Smart Specialisation**

#### Description

A region may have a smart specialisation strategy, but to have an effect, the research institutions in the area must also think about where to position themselves in this strategy, and sharpen their research profile around this decision.

#### Metric

(# Research institutions that sharpened their research profile according to the region’s smart specialisation)

/(# Research institutions reached about smart specialisation)

#### Baseline/Target

The denominator refers to all research institutions to which the smart specialisation has been directly communicated – be it in targeted dissemination events, or in the process of creating or refining the strategy (for example in the Regional Interest Group).

The metric will increase first, but then plateau, since the number of research institutions is limited in each region.

## **2.1.4 Involve all stakeholders**

### **2.1.4.1 Attractiveness of Smart City Platform**

#### Description

To understand regional strength, and refine a Smart Specialisation strategy, it is necessary that the key players in Smart Cities have a regular exchange.

#### Metrics

# Cumulative attendance at Smart City Platform meetings

# Attendance of unique institutions over whole period

#### Baseline/Target

Tracked per year. The attendance of unique institutions (from the triple helix) is expected to plateau.

### **2.1.4.2 Involvement of local authorities**

#### Description

For all Smart City activities, it is necessary to include local authorities in the setup phase.

#### Metric

(# Local authorities involved) /

(# Local authorities concerned)

#### Baseline/Target

Tracked for the Smart Specialisation Strategy, but possible also for distinct Smart City projects. The local authorities concerned are all those who, in the regional area (that is, excluding federal authorities), have own Smart City policies, or are responsible for regulations severely impacting Smart City projects.

The aim is to have the metric near one.

## **2.1.5 Collaborate across sectors**

### **2.1.5.1 Reference projects**

#### Description

Reference projects are a very effective means of promoting cross sector collaboration. Those projects in the Smart City domain are cutting across technology domains, and across application domains – for example they involve city planning, mobility providers, communication providers, and transport authorities.

#### Metrics

# Reference projects

# Domains involved in reference projects

# Companies involved in reference projects

#### Baseline/Target

Domains can also mean several departments in a local administration that usually don't have to collaborate, such as (indeed) city planning and public transport. Reference projects have a volume of at least 500K €.

The number of domains involved is an indicator of the collaboration intensity, and expected to grow over time.

## **2.1.6 Create public & policymaker awareness**

### **2.1.6.1 Policy acknowledging ES as KET for Smart Cities**

#### Description

Once policy makers have understood that Embedded Systems are a Key Enabling Technology for Smart Cities, they will include references to this in the public policy documents.

### Metric

# Major policy documents that mention ES as basis for Smart Cities

### Baseline/Target

“Major” here is to mean that the document describes a policy or legal framework, which is not updated more often than once a year. Secondary publications referring to the major documents are not counted.

## **2.1.6.2 Public awareness for ES as KET for Smart Cities**

### Description

Just as it took time for IT to be commonly accepted as Key Enabling Technology for most industries, Embedded Systems need to be recognised as central enabling technology for Smart Cities.

### Metric

# Publications aimed at general public mentioning ES as KET for Smart Cities

### Baseline/Target

The metric can be tracked both at a national level, and a regional level (which will more closely reflect the effects of the CLINES actions).

## **2.2 Build a vibrant ESSC eco-system**

### **2.2.1 Strengthen cluster organisations**

The cluster organisations – be they called “cluster offices” or “networks” – are the centre of the eco system. Their continued long-term operation is to be ensured.

#### **2.2.1.1 Personnel stability**

### Description

The network of trust within an eco system is based on the informal personal relations between the actors, with the personnel of the cluster organisations acting as intermediaries trusted by a large number of companies. To maintain the trust network, the personnel of the cluster organisations has to remain stable.

### Metric

(# Persons newly employed) /

(Average number of employed persons)

### Baseline/Target

The metrics are measured in Full Time Equivalents (FTEs), over the period of the last 36 months. A low number means great personnel stability.

### **2.2.1.2 Stable base funding**

#### Description

Cluster organisations need to maintain a certain level of networking and awareness shaping activities in order to maintain eco system coherence, and to keep the cluster members activated. This base work can mostly not be attributed to specific projects, but needs a stable funding. This base funding is mostly provided by public authorities, seldom by private investors.

#### Metric

Stable base funding / Total funding

#### Baseline/Target

Measured in thousand €, per year. Total funding is the total budget of the cluster organisation (excluding funds to be handed through for projects). Stable base funding is defined as funding not being tied to specific projects, but available without restrictions for cluster activities, and being promised for timeframes of at least 3 years.

Experience tells that a base funding rate exceeding 50% is necessary. At values below, the cluster organisations get too much tangled up in projects, and can not pursue base work and long term goals.

### **2.2.1.3 Policy recognition**

#### Description

The central role of the cluster organisations for the ecosystem needs to be recognised by policy makers, to ensure a long term stability for the operation of the cluster organisations.

#### Metric

# Policy documents, general press releases and speeches supporting cluster organisations

#### Baseline/Target

Measured per calendar year. Tracks the number of public communications of the regional government that express support for cluster organisations.

## **2.2.2 Improve attractiveness**

### **2.2.2.1 Contact requests**

#### Description

It is a clear prove of the attractiveness of an eco system when companies or organisations from the outside reach out to the cluster organisations wishing to be part (“organic growth”).

#### Metrics

# Contact requests by companies

# Contact requests by cluster organisations

Share of contact requests that are non-national

#### Baseline/Target

Measured per calendar year. Only count contact requests of companies/cluster that have not been individually contacted by the cluster organisations.

### **2.2.3 Improve visibility**

#### **2.2.3.1 Formal CLINES / ESSC cluster office**

##### Description

The visibility of the members of the CLINES cluster can be improved by establishing a formal cluster office. This office would be ESSC branded, and established as recognised sector representative in Embedded Systems for Smart Cities. It would become the reference point for local market intelligence/trend analysis/roadmapping, and represent the sector towards local government, press, and related intermediaries.

##### Metric

Funding for formal CLINES cluster office

##### Baseline/Target

The operation of the CLINES cluster office will require at least 150K€ annually.

#### **2.2.3.2 Showrooms and prototypes**

##### Description

Permanent and transient, real-life and virtual, showrooms offer the possibility to show off what's possible. That is, the cluster members can demonstrate their ability to built integrated solutions.

##### Metric

# Visitors to showrooms and prototype demonstrations

##### Baseline/Target

Measured per calendar year.

#### **2.2.3.3 ESSC competence publications**

##### Description

Not only must the competence of the partners for ESSC be recognised inside the region (see Chapter 2.1.6), but must the competence also be clearly communicated to potential partners and customers.

##### Metrics

# Publications mentioning the ESSC competences of the partners

# Persons attending outreach events

##### Baseline/Target

This includes articles in the general press, but of course also the trade press. Ideally, existing regional outreach publications will also start to include the Smart City advantages of the region.

## **2.2.4 Create value together**

### **2.2.4.1 Creation of project networks**

#### Description

By bringing together actors for a project proposal, a network around a specific topic is created, that will foster cooperation regardless of the granting of the proposal.

#### Metrics

# Project consortia created around distinct topics

# Actors involved in project consortia

#### Baseline/Target

The target volume for each project is at least 80K€.

## **2.2.5 Foster transnational cooperation between clusters**

The idea is to have sustainable partnerships between the cluster offices.

### **2.2.5.1 Formalised cluster cooperation**

#### Description

Clusters can cooperate well without a formal agreement, just by having successful common events and projects. But a formalised cluster cooperation – via a memorandum of understanding (MOU) or the like – allows all actors to be sure the current commitment of the partners is intended to last.

#### Metric

# Cluster organisations involved in formal inter-cluster agreements

#### Baseline/Target

The number is expected to plateau, since it is only possible to have close relations with a limited number of partners.

### **2.2.5.2 Cluster exchange intensity**

#### Description

To activate inter-cluster effects, the cluster offices need to inform each other on their current top topics and issues.

#### Metric

(# Inter-cluster update talks) /

(# Clusters involved)

#### Baseline/Target

A 20-minute phone conversation on the current hot topics in the respective partner clusters is already an update talk in the sense of the metric.

## **2.3 Develop innovation capacities**

### **2.3.1 Develop competences**

#### **2.3.1.1 Common innovation activities**

##### Description

By holding common innovation activities, such as innovation workshops, the cluster organisations learn about each other's innovation techniques. Furthermore, the generic innovation paradigm developed in the CLINES workshops is refined.

##### Metrics

# Innovation activities

# Participants at activities

# SMEs in the activities

Satisfaction of Participants

##### Baseline/Target

Innovation activities are all events or meetings that are held with the goal of producing innovative business ideas that can be pursued by the participants. An example are the innovation workshops as held within CLINES. Satisfaction is tracked on a scale from 1 to 5 (completely satisfied).

#### **2.3.1.2 Contact intensity SME - university departments**

##### Description

Bringing SMEs into contact with university departments with complementary interests ensures quick market uptake of innovative technologies.

##### Metric

# SMEs who have contacts with at least two university research departments who research technology close to the company's competences

##### Baseline/Target

This metric is supposed to steadily increase.

### **2.3.2 Stimulate SMEs to become international innovation actors**

See also Chapter 2.3.1.1 for a KPI on SME innovation capacities.

#### **2.3.2.1 Innovative Topics visible to SMEs**

##### Description

Exposing SMEs to innovative topics is a way of stimulating SMEs to become innovation actors.

##### Metric

# SMEs attending events on innovative topics



Baseline/Target

A prime example of those events would be the evening events called BICCtalks that centre on a topic that is generally not addressed within SMEs. The topic can be technology-based or concern shifts in the economic landscape.

**2.3.2.2 Access to Innovation Infrastructure**Description

Large-scale innovation infrastructure, such as LTE labs with mobile network technology, should be made available by their operators to SMEs, because those can not afford the operation of one.

Metric

# Innovation facilities available to SMEs

Baseline/Target

The indicator tracks how many of those innovation infrastructure facilities are made accessible to SMEs in the local ecosystem. Does not distinguish between paid and for-free usage.

**2.3.3 Close research & technology gaps****2.3.3.1 Formal Business-Academia cooperations**Description

Some collaboration between companies and academia is made visible by formal cooperation agreements, which can be tracked.

Metric

# Formal collaboration agreements between companies and academia

Baseline/Target

Goes beyond the loose contacts tracked via the KPI of Chapter 2.3.1.2.

**2.4 Create more business****2.4.1 Focus on SMEs****2.4.1.1 International ES markets for SMEs**Description

SMEs will be supported in reaching international markets for their Embedded Systems technology products.

Metrics

# SMEs supported

# Markets accessed

Market volume of markets accessed

### Baseline/Target

Due to usual business secrecy, it will not be possible to track the business actually generated in the markets accessed.

## **2.4.1.2 SME Federation**

### Description

In many industries (such as the automotive one), a certain size of the company has become a requirement to compete for supplier contracts. SMEs need to form federations to still participate in this market. Furthermore, federated SMEs can also offer more integrated and hence more appealing products than single companies alone.

### Metric

# SME federations formed

### Baseline/Target

Includes federations that are only formed temporarily for the purpose of winning a specific contracts.

## **2.4.2 Improve access to international partners**

### **2.4.2.1 International contacts**

#### Description

To gain access to international markets, companies need contacts. It is here that the contacts created in the CLINES travels can be activated.

#### Metric

# New contacts in potential markets in CLINES countries

#### Baseline/Target

A contact is a person either at a potential customer or at a partner, with whom a contact has been established by the CLINES cluster organisations.

## **2.4.3 Unlock new opportunities**

### **2.4.3.1 Contact intensity between SMEs and big players**

#### Description

Bringing SMEs into contact with big players promotes business opportunities for the SMEs.

#### Metric

(# SMEs from cluster with new contacts at big players) /

(# Big players in cluster)

#### Baseline/Target

It will get more difficult over time to increase this metric, since the big players do decrease the number of companies they are willing to deal with over time (compare Chapter 2.4.1.2).

## **2.4.4 Develop entrepreneurship**

### **2.4.4.1 Smart City training for entrepreneurs**

#### Description

An entrepreneur needs to coordinate requirements and people from differing domains. This is also an inherent requirement of Smart City projects – challenging ESSC projects can thus be used in the training of entrepreneurs.

#### Metrics

# Entrepreneurs in training courses with Smart City use cases

# Business models developed for Smart City use cases

#### Baseline/Target

Increasing entrepreneurship itself is outside the scope of the project, but a collaboration with entrepreneurial schools is recommended. The “business model” metric is also applicable for Chapter 2.4.5.

## **2.4.5 Develop business models**

### **2.4.5.1 Offer construction**

#### Description

This approach goes the longest way in helping companies create new business. It consists of business development specialists working closely with a company or a group of companies to define a new offer of services and products in the domain of Smart City that will be able to generate revenue for the companies.

#### Metric

# Business idea creation and refinement sessions with business developers

#### Baseline/Target

This process is very time intensive, and thus can only be offered to a limited number of the most promising companies.

## **2.5 Mobilize funding sources for ESSC**

### **2.5.1.1 Contact with funding organisations**

#### Description

Having close contacts with (public and private) funding organisations helps to quicker determine if a proposed project or product idea is fit for funding by a specific funding lender.

#### Metric

## # Direct contacts at funding organisations

### Baseline/Target

Funding organisations are local and regional authorities, national authorities, venture capitalists and business angels, venture capital branches of big industry players, and the banking industry (see details in CLINES deliverable 2.4, “Analysis and catalogue of funding sources”).

## **2.5.1.2 PPP Best Practices**

### Description

Public private partnerships (PPPs) are a way to make new infrastructure available, while ensuring budgetary sustainability for the city involved. Since a balance is complicated to find in PPPs, established Smart City PPP examples need to be found and documented to serve as blueprint for further PPPs.

### Metric

# Successful, established Smart City PPPs documented

### Baseline/Target

May also include international PPP cases, but for the comparability of legal and business frameworks, national PPP cases are to be preferred.

## **2.5.1.3 Reference projects underpin creditworthiness**

### Description

Smart City projects often involve infrastructure changes, and infrastructure requires high investment volumes. Capital lenders are often reluctant to commit to the investment volumes required – if the receiving company can not demonstrate a track record of successful project completion.

### Metric

Average number of reference projects collected per Smart City company

### Baseline/Target

The baseline are those few companies that are currently trying to win Smart City contracts. Those need to have a documentation of already successful implementations of (parts of) their offers.

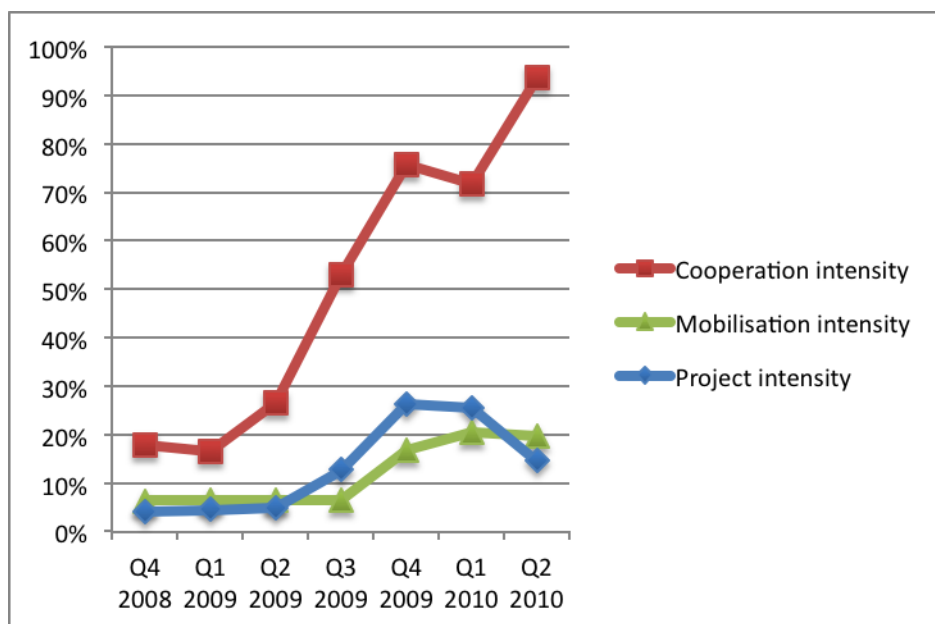
### 3 KPIs for Cluster Networks

A meta goal of the CLINES project is to stabilise and grow the participating cluster networks (BICCnet, Brains Business, DSP Valley, GAIA). The development of cluster networks can be tracked using Key Performance Indicators, which yield pointers for areas where improvement has to be made.

There is already a well-developed KPI framework in existence, as documented in the European Cluster Excellence Initiative publication “The quality label for cluster organisations - criteria, processes, framework of implementation” [GoldLabel2012]. In chapter 3, it lists 33 quality indicators, going from the internal structure of the clusters to external recognition.

A number of KPIs used to officially rate cluster networks is documented in the 2011 evaluation report on the Bavarian cluster initiative [ClusterInitiativeEvaluationReport2011]. For the strategic development of cluster networks (or “competence networks” as they are called here), in [DevelopCompetenceNetworks2008] qualitative and quantitative indicators are given. As evidence of the wide range of KPIs actually employed by cluster organisations, see the “Evidence of success” sections in the [ClusterixGoodPracticeManual2014] – mind the varying level of formalisation.

For an integrated KPI framework, the reader is referred to [GoldLabel2012]. In the following, we will present a selection of indicators that are currently in use at one of the CLINES cluster organisations. Some more, directly relevant for the CLINES goals, can be found in Chapter 2.2.1.



Tracing some BICCnet KPIs over time (historical data).

#### Definitions

*Actor:* A person that participates at least two times a year in an event of the cluster organisation.

*Cooperating actor:* A person being regularly part of one of the cooperation platforms, such as working groups or matchmaking events.

*Core actor:* An actor that is involved in the activities as a driving force, for example as lead of a project, or host of a topic working group.

*Cluster base:* The number of people that can be reached with regular cluster communications.

*Possible reach:* The total number of companies and research institutions in the region, in the topic under consideration.

### **3.1 Innovation**

#### **3.1.1 Project Intensity**

##### Description

Measuring the proportion of actors that participate in collaborative R&D projects initiated by the cluster organisation.

##### Metrics

# Actors involved in R&D projects / # Actors

Volume of collaborative projects

##### Baseline/Target

Will start out low, and steadily rise as the partners grow to trust each other. Count publicly funded R&D projects as well as industry funded ones. Project volume measured in thousand €.

### **3.2 Competition dynamics**

#### **3.2.1 Cooperation Intensity**

##### Description

Measuring the proportion of actors that can be motivated to participate in cooperation activities.

##### Metric

# Cooperating actors / # Actors

##### Baseline/Target

Will start out low, and as the core group of the cluster network forms, go as high as 0.7, meaning 70% of the regular actors are participating in cooperation activities with each other.

### **3.3 Regional anchoring**

#### **3.3.1 Reach**

##### Description

Proportion of companies that can be reached by cluster communications.

##### Metric

Cluster base / Possible reach

### Baseline/Target

For simplicity, the metric assumes there is at most one contact person per company.

## **3.3.2 Activation intensity**

### Description

The rate of persons in the cluster base that can actually be motivated to take part in cluster action.

### Metric

# Actors / Cluster base

### Baseline/Target

Initially, as the cluster base is built, the rate will be very high (around 30%), and then drop as the contact lists (and with it the cluster base) grow bigger, also including people only marginally interested in the topic.

## **3.3.3 Mobilisation intensity**

### Description

The core actors are a driving force behind the activities of the cluster network. Apart from the employees of the cluster, they are the relationship nodes.

### Metric

# Core actors / # Actors

### Baseline/Target

The number will be low, and over the years reach a plateau of around 20 (this is then the number of people which a core actor can regularly motivate to participate in cluster actions).

## **3.4 Management of cluster network**

### **3.4.1 Actor support rate**

#### Description

The number of actors per employee shows the size of the personal networks of the employees.

#### Metric

# Actors / # Employees

#### Baseline/Target

Employees measured in FTEs. The rate will be around 100, and decline as the network stabilizes: The relations with the actors will become more close, but can not be maintained at the level of the initial high rate of 100 per employee.

### **3.4.2 Processes documented**

#### Description

The number of internal processes that are documented is a first indicator for the maturity of the cluster organisation.

#### Metric

# Internal processes documented

#### Baseline/Target

A process description has to have at least 2 pages A4 to be counted. Note: This indicator is susceptible to artificial growth if the processes are split into separately documented sub-processes.

## **3.5 People**

### **3.5.1 Critical mass in cluster staff**

#### Description

If clusters want to be taken seriously on the local and international level, they will need a certain critical mass in staffing. Only then can they properly execute all their tasks (both internal operations and external activities).

#### Metric

# FTE working for the cluster

#### Baseline/Target

For a mature cluster, a staff of 5 FTEs (Full Time Equivalents) seems to be required (for example for management, local and international representation, project management). For new or young clusters, a timeline should be provided how to reach that critical mass, for example this size should be reachable within 5 years of operation.

### **3.5.2 Employee satisfaction**

#### Description

Since personnel stability is essential for cluster networks (see Chapter 2.2.1.1), employee satisfaction has to be kept high to retain the people who act as trust anchors.

#### Metric

Employee satisfaction measured via questionnaires

#### Baseline/Target

The satisfaction is measured on a scale from 1 to 5 (completely satisfied with current situation).

### **3.5.3 Career counselling**

#### Description

Employees need to see a way how to develop themselves within the cluster network.



### Metric

# One-on-one career conversations

### Baseline/Target

The counselling sessions can also happen at specialised external consultants, they need not be internal.

## **3.5.4 Employee training**

### Description

Training courses increase employee satisfaction, and ensure that the cluster networks profits from new innovation management techniques.

### Metric

# Days employees spend in training.

### Baseline/Target

The metric shall not deviate too much between the employees.

## **3.6 Cluster finances**

### **3.6.1 Revenue**

#### Description

The income of the cluster organisation should remain stable over time.

#### Metrics

Total revenue

Member contributions

Public funding

#### Baseline/Target

Measured in thousand €, per year. Total revenue is the total budget of the cluster organisation (excluding funds to be handed through for projects). Member contributions can be financial, or take the form of in-kind contributions such as work or space.

The public funding proportion is also treated in Chapter 2.2.1.2.